

*Sub A1*  
1 WHAT IS CLAIMED IS:

2       1. A communications system for secure wireless  
3        communications, said communications system comprising:  
4                a first device having transceiving means therein  
5        for communicating in a first and a second communication mode;  
6        and  
7                a second device, in wireless communication with  
8        said first device, said first and second devices wirelessly  
9        communicating in said first communication mode using an  
10      infrared signal and in said second communication mode using  
      a radiofrequency signal.

1       2. The communications system according to claim 1,  
2       wherein said first and second devices transceive a plurality  
3       of messages therebetween in said second communication mode,  
4       wherein, prior to transceiving a security message  
5       therebetween, said first and second devices switch  
6       transceiving to said first communication mode, and transmit  
7       said security message in said first communication mode.

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1       3. The communications system according to claim 2,  
2       wherein said first and second devices, upon completion of the

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3 transceiving of said security message, switch transceiving  
4 therebetween to said second communication mode.

1 4. The communications system according to claim 2,  
2 wherein said security message comprises a plurality of  
3 encryption keys for the subsequent encryption of a plurality  
4 of said messages transceived in said second communication  
5 mode.

1 5. The communications system according to claim 2,  
2 wherein upon said second device switching said transceiving  
3 to said first communication mode, said second device  
4 transmits an infrared request message to said first device.

1 6. The communication system according to claim 5,  
2 wherein said first device, upon receipt of said infrared  
3 request message, transmits said security message to said  
4 second device.

1 7. The communication system according to claim 6,  
2 wherein said security message comprises a plurality of  
3 encryption keys for the subsequent encryption of a plurality

4 of said messages transceived in said second communication  
5 mode.

1 8. The communication system according to claim 1,  
2 wherein said transceiving means within said first device  
3 comprises:

4 infrared transceiving means for transceiving  
5 infrared signals with said second device in said first  
6 communications mode;

7 radiofrequency transceiving means for transceiving  
8 radiofrequency signals with said second device in said second  
9 communications mode; and

10 switching means for switching between said infrared  
11 and radiofrequency transceiving means.

1 9. The communication system according to claim 8,  
2 wherein said infrared transceiving means comprises:

3 a photodetector for receiving said infrared signals  
4 from said second device; and

5 an infrared emitter for transmitting said infrared  
6 signals to said second device.

1        10. The communication system according to claim 1,  
2 wherein said second device comprises a transceiving means  
3 therein, said transceiving means within said second device  
4 comprising:

5                infrared transceiving means for transceiving said  
6 infrared signals with said first device in said first  
7 communications mode;

8                radiofrequency transceiving means for transceiving  
9 said radiofrequency signals with said first device in said  
10 second communications mode; and

11               switching means for switching between said infrared  
12 and radiofrequency transceiving means.

1        11. The communication system according to claim 10,  
2 wherein said infrared transceiving means within said second  
3 device comprises:

4                a photodetector for receiving said infrared signals  
5 from said first device; and

6                an infrared emitter for transmitting said infrared  
7 signals to said first device.

1        12. The communication system according to claim 1,  
2 wherein said communication system is a cordless system.

1           13. The communication system according to claim 1,  
2       wherein said first and second devices are each selected from  
3       the group consisting of:

4           mobile telephones, home base stations, SIM cards,  
5       headsets, computers, printers, plotters, projectors,  
6       facsimile devices, pagers, data organizers, computer  
7       terminals, scanners, microphones, PC cards, televisions,  
8       radios, stereos, VCRs, light devices, dimmers, thermostats,  
9       doors, refrigerators, freezers, ovens, washers, dryers,  
10      answering machines, home alarms, car alarms, and other  
11      peripheral and portable devices.

1           14. The communication system according to claim 1,  
2       wherein said first and second devices communicate on a  
3       radiofrequency band ranging from about 2.4 GHz to about 2.483  
4       GHz.

1           15. The communication system according to claim 14,  
2       wherein said band is at about 2.45 GHz.

1           16. A method for establishing a secure communication  
2       link between a dual-mode first device and a dual-mode second

3 device of a communication system, a first mode of said dual-  
4 mode being an infrared mode and a second mode of said dual-  
5 mode being a radiofrequency mode, said method comprising the  
6 steps of:

7                   forwarding an infrared request message in said  
8 infrared mode;

9                   establishing said secure communication link between  
10 said first and second devices, said secure communication link  
11 operating in said infrared mode; and

12                   transferring, during said secure communications  
13 link, a security message between said first and second  
14 devices in said infrared mode.

1                   17. The method according to claim 16, wherein prior to  
2 said establishment of said secure communication link, said  
3 first and second devices operated in said radiofrequency  
4 mode.

1                   18. The method according to claim 16, wherein, in said  
2 step of forwarding, said first device forwards said infrared  
3 request message to said second device, and said second  
4 device, upon receipt of said infrared request message,  
5 replies with an infrared reply message.

1        19. The method according to claim 16, wherein said  
2 security message comprises a plurality of encryption keys for  
3 the subsequent encryption of a plurality of transmissions in  
4 said radiofrequency mode.

1        20. The method according to claim 16, further  
2 comprising, after said step of transferring said security  
3 message, the step of:

4                establishing a radiofrequency communication link  
5 between said first and second devices in said radiofrequency  
6 mode.

1        21. The method according to claim 16, further  
2 comprising, after said step of transferring said security  
3 message, the step of:

4                forwarding, from said second device, a security  
5 poll signal to said first device.

1        22. The method according to claim 21, wherein said step  
2 of forwarding said security poll signal occurs periodically.

1           23. The method according to claim 21, wherein said step  
2 of forwarding said security poll signal occurs randomly.

1           24. The method according to claim 16, wherein said  
2 first and second devices are each selected from the group  
3 consisting of:

4                           mobile telephones, home base stations, SIM cards,  
5 headsets, computers, printers, plotters, projectors,  
6 facsimile devices, pagers, data organizers, computer  
7 terminals, scanners, microphones, PC cards, televisions,  
8 radios, stereos, VCRs, light devices, dimmers, thermostats,  
9 doors, refrigerators, freezers, ovens, washers, dryers,  
10 answering machines, home alarms, car alarms, and other  
11 peripheral and portable devices.

1           25. The method according to claim 16, wherein said  
2 first and second devices communicate on a radiofrequency band  
3 ranging from about 2.4 GHz to about 2.483 GHz.

1           26. The method according to claim 25, wherein said band  
2 is at about 2.45 GHz..

1        27. A transceiving device for secure wireless  
2        communications in a communications system, said device  
3        comprising:

4                radiofrequency transceiving means for transceiving  
5        a plurality of radiofrequency transmissions within said  
6        communications system; and  
7                infrared transceiving means for transceiving a  
8        plurality of infrared transmissions within said  
9        communications system.

1        28. The transceiving device according to claim 27,  
2        wherein said infrared transceiving means comprises:

3                a photodetector for receiving said infrared  
4        transmissions; and  
5                an infrared emitter for transmitting said infrared  
6        transmissions.

1        29. The transceiving device according to claim 28,  
2        wherein said infrared emitter comprises a light-emitting  
3        diode.

1        30. The transceiving device according to claim 27,  
2        wherein said transceiving device switches transceiving from

3 said radiofrequency transceiving means to said infrared  
4 transceiving means prior to the transmission of an infrared  
5 security message within said communications system.

1       31. The transceiving device according to claim 30,  
2 wherein, after the transmission of said infrared security  
3 message, said transceiving device switches transceiving to  
4 said radiofrequency transceiving means.

1           32. The transceiving device according to claim 30,  
2 wherein said infrared security transmission comprises a  
3 plurality of encryption keys for the subsequent encryption  
4 of a plurality of said radiofrequency transmissions between  
5 said transceiving device and said communications system.

1           33. The transceiving device according to claim 27,  
2 wherein said first and second devices are each selected from  
3 the group consisting of:

4 mobile telephones, home base stations, SIM cards,  
5 headsets, computers, printers, plotters, projectors,  
6 facsimile devices, pagers, data organizers, computer  
7 terminals, scanners, microphones, PC cards, televisions,  
8 radios, stereos, VCRs, light devices, dimmers, thermostats,

9        doors, refrigerators, freezers, ovens, washers, dryers,  
10      answering machines, home alarms, car alarms, and other  
11      peripheral and portable devices.

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1        34. The Transceiving device according to claim 27,  
2      wherein said first and second devices communicate on a  
3      radiofrequency band ranging from about 2.4 GHz to about 2.483  
4      GHz.

1        35. The transceiving device according to claim 34,  
2      wherein said band is at about 2.45 GHz.

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